

WHAT WE CLAIM IS:

1. A continuous fluid filtration device, comprising:

filtration cells each having an opening towards its top through which they are supplied with fluid to be filtered, the cells being fitted with a filter bed which, in the filtration position of the cells allows passage of a filtrate and retention of a filtration cake, and a bottom;

the cells being disposed in a carousel around a rotation axis and each cell arranged so as to be able to pivot about a tilt axis tangential to a horizontal circle having the rotation axis as its centre;

means for supporting the filtration cells so that each cell can perform a revolution about the rotation axis;

means for driving the filtration cells in revolution about the rotation axis;

means for moving the filtration cells to cause a tilting movement thereof about their tilt axis, during their revolution about the rotation axis; and

means for discharging the filtrate from the cells comprising at least one outlet orifice at the bottom of each cell, a central collector and connection means allowing flow of the filtrate between the said at least one outlet orifice and the collector,

said connection means for each cell comprising a flexible conduit in which, in the filtration position of the cell, no area of the flexible conduit is lower than another area of this conduit situated downstream with respect to the flow of the filtrate, the flexible conduit being arranged so as not to undergo any elongation during the tilting of the cell.

2. A device according to Claim 1, characterised in that, in a radial section passing through the device, the flexible conduit in the filtration position of the cell extends downwards from an outlet orifice along a substantially vertical axis and then, at a height lower than the tilt axis, is angled in the direction of the collector so as to continuously have a downward slope, and in that the flexible conduit in the tilting position of the cell extends substantially horizontally from the outlet orifice as far as the tilt axis, and is then angled in the direction of the collector.

3. A device according to Claim 2, characterised in that the tilt axis is supported in at least one bearing having a first outside diameter D1, in that the flexible conduit has a second outside diameter D2 and in that the distance between the tilt axis and the substantially vertical axis of the flexible conduit is equal to or greater than 0 and less than or equal to $D1 + D2$.

4. A device according to Claim 2, characterised in that the substantially vertical axis is, in the said radial section, situated between the tilt axis and the rotation axis.

5. A device according to Claim 3, characterised in that the substantially vertical axis is, in the said radial section, situated between the tilt axis and the rotation axis.

6. A device according to Claim 1, characterised in that each cell is supported on a shaft coaxial with the tilt axis so as to be able to pivot about this axis.

7. A device according to Claim 2, characterised in that each cell is supported on a shaft coaxial with the tilt axis so as to be able to pivot about this axis.

8. A device according to Claim 1, characterised in that each cell is supported on two shaft ends coaxial with each other and coaxial with the tilt axis so as to be able to pivot about this axis.

9. A device according to Claim 2, characterised in that each cell is supported on two shaft ends coaxial with each other and coaxial with the tilt axis so as to be able to pivot about this axis.

10. A device according to Claim 3, characterised in that each cell is supported on two shaft ends coaxial with each other and coaxial with the tilt axis so as to be able to pivot about this axis.

11. A device according to Claim 1, characterised in that it comprises a support for each flexible conduit which turns about the rotation axis simultaneously with the filtration cells.

12. A device according to Claim 2, characterised in that it comprises a support for each flexible conduit which turns about the rotation axis simultaneously with the filtration cells.

13. A device according to Claim 3, characterised in that it comprises a support for each flexible conduit which turns about the rotation axis simultaneously with the filtration cells.

14. A device according to Claim 1, characterised in that the collector is connected to a source of negative pressure which the flexible conduits connected to the filtration cells in the filtration position communicate to them, below their filter bed, and in that the collector is also a distributor connected to a source of pressurised gas which the flexible conduits connected to the filtration cells in the tilted position communicate to them, in order to assist with the detachment of the filtration cake from the filter bed.

15. A device according to Claim 2, characterised in that the collector is connected to a source of negative pressure which the flexible conduits connected to the filtration cells in the filtration position communicate to them, below their filter bed, and in that the collector is also a distributor connected to a source of pressurised gas which the flexible conduits connected to the filtration cells in the tilted position communicate to them, in order to assist with the detachment of the filtration cake from the filter bed.

16. A device according to Claim 3, characterised in that the collector is connected to a source of negative pressure which the flexible conduits connected to the filtration cells in the filtration position communicate to them, below their filter bed, and in that the collector is also a distributor connected to a source of pressurised gas which the flexible conduits

connected to the filtration cells in the tilted position communicate to them, in order to assist with the detachment of the filtration cake from the filter bed.

17. A device according to Claim 1, characterised in that the aforementioned tilting movement means comprises a roller arranged on each cell so as to be able to turn freely about a pivot axis, and a guide rail arranged fixedly at one point on the filtration device so as to receive the roller of each driven filtration cell and to guide it so as to cause the said tilting movement of the cell.

18. A device according to Claim 17, characterised in that the pivot axis of each roller is situated in a plane passing through the rotation axis of the device and perpendicular to the tilt axis of the filtration cell corresponding to the roller.

19. A device according to Claim 17, characterised in that the roller is carried by the cell at an internal end thereof.

20. A device according to Claim 17, characterised in that the guide rail is disposed above the filtration cells so as to form a U in a plan view, comprising a central part and two lateral branches, the filtration surface of the cell being in an approximately vertical position when the roller reaches the central part of the U.